

TROPICAL RAINFALL MEASURING MISSION

January 24, 2000 - January 30, 2000

DOY 024 - 030

Day of Mission 787 - 793

TRMM MISSION OPERATIONS

- TRMM is flying in the +X Forward direction as of 00-024, at 14:30:51z.
- Yaw maneuver #37 is scheduled for February 10th (00-041).
- Delta-V maneuver #158 is scheduled for February 3rd (00-034), using the LBS thrusters.
- The Beta angle range for 00-031 to 00-037 is $+16.6^{\circ}$ to $+10.7^{\circ}$, peaking at 17.8° on 00-032/033.
- The next Monthly Status Review is scheduled for 00-033.
- The next CCB meeting is scheduled for 00-054.

TRMM SUBSYSTEM OPERATIONS

Attitude Control System (ACS)

A 180° Yaw Maneuver to +X Forward was successfully conducted on 00-024 at 14:30:51z.

Delta-V maneuver #156 was successfully conducted on 00-025 at 15:55:12z and 16:43:20z for durations of 37 and 24 seconds respectively, using the LBS thrusters. The total delta-v was 1.0136 m/s. The off-modulation of the +Pitch thruster (#2) for burn 1 and 2 was 26.1% and 26.6% (73.9% and 73.4% on time) and the -Yaw thruster (#1) off-modulation for burn 1 was 9.8% (90.2% on time). The remaining fuel is 636.797 kg, and the final apogee and perigee height is 354.79 km x 347.51 km.

Delta-V maneuver #157 was successfully conducted on 00-029 at 16:00:06z and 16:47:09z for durations of 30 and 22.125 seconds respectively, using the LBS thrusters. The total delta-v was 0.8954 m/s. The off-modulation of the +Pitch thruster (#2) for burn 1 and 2 was 22.9% and 20.9% (77.1% and 79.1% on time) and there was no -Yaw off-modulation due to the shorter burn durations. The remaining fuel is 635.537 kg, and the final apogee and perigee height is 354.75 km x 347.67 km.

The ESA experienced Moon interference in quadrants 2 and 4 on 00-026 as predicted. The ACS performed nominally during the transitions between 3 and 4 quadrant control.

Flight Data System (FDS)/Command & Data Handling (C&DH)

The frequency standard continues to drift in the negative direction and remains x77D with a current drift rate of $-4.06 \mu\text{s/hr}$. The UTCF was adjusted by $-883 \mu\text{s}$ on 99-027 at 22:33:52z. The new UTCF value is 31535996.851025 seconds with a current drift value of $-286 \mu\text{s}$.

There were TC mode to Flywheel occurrences on 00-023 at 23:33:28z and on 00-030 at 13:24:22z.

Q-channel restarts occurred on 00-024 at 22:02:33z and on 00-027 at 16:36:58z and 18:13:19z.

EDAC multi-bit errors occurred on 00-028 at 16:51:30z and on 00-029 at 19:27:31z and 21:42:54z.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

The Power subsystem is operating nominally.

Loading of the new PSIB Patch will be performed in February.

Electrical Subsystem

The Electrical subsystem operated nominally during this period.

Thermal Subsystem

The Thermal subsystem operated nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem performed nominally during this period.

A 1 minute 49 second generic late acquisition (#48) occurred on 00-026 for the 12:45:30z TDS/SSA2 event. All data was recovered.

SPACECRAFT INSTRUMENTS

CERES

The power on for CERES is targeted for mid-February, to begin concurrent operations with Terra.

LIS

LIS performed nominally during this time period.

PR

PR performed nominally during this time period.

The list of Internal Calibration times over Australia in which PR was not radiating is below:

2000/024:11:23:55 - 11:26:05z
2000/025:03:41:39 - 03:46:43z
2000/025:11:46:55 - 11:48:32z
2000/026:10:35:06 - 10:37:15z
2000/027:02:53:21 - 02:57:17z
2000/027:09:23:46 - 09:26:00z
2000/028:09:46:26 - 09:48:34z
2000/029:08:34:53 - 08:37:05z
2000/030:00:54:48 - 00:57:24z
2000/030:08:57:41 - 08:59:49z

TMI

TMI performed nominally during this time period.

VIRS

VIRS performed nominally during this time period.

The VIRS black body temperature is still being maintained between 9 °C and 16 °C, to improve the quality of the Channel 4 data (the long wave spectral range channel with a wavelength of 10.80 µm). An upgrade to the science data processing for this improvement should be ready in the fall.

GROUND SYSTEM

On 00-026, the FOT rescheduled two TDRS event AOS times following requests from NCC Scheduling related to testing for the upcoming Shuttle Topography Mapping Mission (ER #153).

The FOT was also informed by the NCC that there was a potential impact from the large bandwidth required for the Shuttle test that might require data playback from White Sands, but no impact occurred and all data was received at the MOC and PACORII. No impact is therefore expected during the upcoming Shuttle mission which is scheduled for launch on 00-031.

Event Reports

#153: Two scheduled events modified due to Shuttle test.

Generic Late Acquisition Reports (for TTRs 19639)

#48: 00/026-12:45z; TDS/SSA2; 1 minute 49 seconds.

New Anomaly

No new Anomaly Reports were opened during this period.

Recurring Open Anomalies

No recurring open anomalies were seen during this period.

Prepared by:
Andy Calloway
TRMM Systems Engineer

Approved by:
Lou Kurzmillier
FOT Manager